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LAND, (C. H.)

THE INCONSISTENCY  
OF  
OUR CODE OF DENTAL ETHICS

BY  
DR. C. H. LAND, DETROIT, MICH.







INTERNATIONAL MEDICAL CONGRESS,

WASHINGTON, 1887.

Section of Dental and Oral Surgery,

CHILLICOTHE, OHIO, March, 1887.

DR. C. H. LAND,

*Detroit, Mich.*

DEAR SIR—I herewith advise you that the Council of the Section of Dental and Oral Surgery of the Ninth International Medical Congress, to be held at Washington, D. C., September 5th, 1887, have suggested your name to its Executive Committee as one of those who should receive a special invitation to become a member of the Congress, and take part in its proceedings.

Please inform me by enclosed postal card if such an invitation will be accepted by you.

F. H. REHWINKEL,

*Secretary Section XVII.*



*Section on Dental and Oral Surgery.*

—  
J. TAFT, M. D., D.D.S., PRESIDENT,  
Cincinnati, Ohio, U. S. A.

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E. A. BOGUE, M. D., D.D.S.,  
No. 29 East 20th Street, New York, U. S. A.

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F. H. REHWINKEL, M. D., D.D.S.,  
Chillicothe, Ohio, U. S. A.

NINTH  
INTERNATIONAL MEDICAL  
CONGRESS.

*At Washington, D. C., U. S. A.,  
September 5, 1887.*

—  
CHILLICOTHE, OHIO, U. S. A., July 13, 1887.

DR. C. H. LAND,

*Detroit, Mich.*

DEAR SIR—Dr. Taft, the President of Section 17, I. M. Congress, directs me to say to you that the enclosed advertisement disqualifies you to become a member of the Congress, such advertisements being a violation of the Code of Ethics.

This, however, will not shut you out from exhibiting your furnace or demonstrating your work—occupying the same position as other exhibitors do.

Very truly yours,

F. H. REHWINKEL,

*Secretary Section XVII.*

ADVERTISEMENT REFERRED TO IN THE LETTER.



## BADLY DECAYED TEETH

Can be restored to their original appearance so perfectly that the art is concealed, by

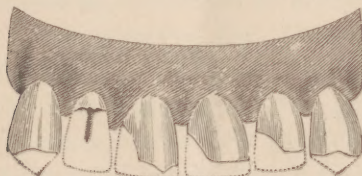
DR. C. H. LAND'S

## NEW PORCELAIN PROCESS

These improvements make it possible to restore every condition of decay to their original appearance in shape, size and color.



Undeveloped teeth can be enlarged to their proper size and made to appear perfect. Old roots can have artificial crowns attached to them and when made to antagonize become as useful as ever. Large and conspicuous gold fillings can have porcelain sections placed over them and thus hide their glaring appearance. Devitalized teeth that have become discolored can have an artificial coat of enamel placed over them and be so thoroughly renewed in appearance that the art is concealed.



The above illustrates a practical piece of work indicating the amount of porcelain added in order to restore the original shape, size and color perfectly. By appointment see specimens of this work, that have been in use from three to six years, at the office,

**264 Woodward Avenue.**



DETROIT, MICH., July 15th, 1887.

DR. F. H. REHWINKEL.

DEAR SIR—Referring to your favor of the 13th, I understand that the primary motive of the Code of Ethics is to prevent quackery, cheating, misrepresenting the truth, etc., and if I felt guilty of such proceedings your President's decision would be justified. On the contrary, if I am to infer that your Code of Ethics is so arbitrary as to prevent me from making a judicious use of the public press or any other legitimate way of disseminating the truth to the public, then my only resource will be to observe the rules of our profession as non-republican in spirit, and adverse to the best interest of progressive men. I regret exceedingly that such a fine line should be drawn in my case.

Under the circumstances you cannot consistently expect me to take part in any of your sections or proceedings.

Yours truly,

C. H. LAND.



## THE INCONSISTENCY OF OUR CODE OF DENTAL ETHICS.

BY DR. C. H. LAND, DETROIT, MICH.

When our Dental fathers formulated a set of rules for the regulation of our social morals or precepts, their motives were excellent in proportion as the desire was to prevent quackery, cheating, misrepresenting, etc., and as far as this act is concerned it becomes a law by common consent of the people. But when your code of ethics distinctly prohibits the judicious use of the public press and all other legitimate means of advertising, it oversteps the bounds of reason, becomes despotic in its nature and adverse to the best interests of progressive men. According to Webster a code of ethics may be true or false, exceedingly arbitrary, depending on the will of those who are directly interested, absolute in power, and governed by no law. Thus it becomes in a large degree tyrannical, inconsistent, and not compatible with moral sentiments. Referring to that portion of the code where it becomes unprofessional to resort to public prints, etc., the penalty being expulsion from the society. This practically is a proclamation that it is dishonorable to make a judicious use of the greatest of all mediums for the dissemination of the truth. Is it possible that so intelligent a body of men have failed to comprehend the value of our daily press for rapidly imparting knowledge to the people—privileges that have made this one of the most enlightened and progressive countries in the world? Do they take into consideration that thousands of people are suffering from badly decayed teeth and resorting to the barbaric methods of extraction simply because you have failed to provide a literature that the public might be made aware of the rapid

progress made in modern dental art? Have you informed them that no teeth need be extracted? Have you spread the news that artificial crowns could be attached to roots? *No*, but on the contrary your efforts have been to muzzle the public press. Nay, you have gone still further. Your code practically nullifies one of the most generous acts of our government when it prohibits members from dealing in patents. Perhaps no class of men needs to be remunerated for their inventive genius more than those who follow a profession, with limited means and an occupation that requires constant personal supervision, otherwise no income can accrue, knowing that, when sickness overtakes, the whole machine stops, while expenses continue. Yet in the face of these facts your efforts are to completely annihilate every prospect of the inventor, and as a result you force his hard-earned bread into the hands of the dental manufacturer, to whom you seem perfectly willing to pay that which belongs to the inventor. In other words it is perfectly proper for the dental manufacturer to patent every tool or product, but the dentist; oh, no; it is unprofessional—not quite ethical to handle his own patent. Perhaps the nature of some inventions are more appropriate in the hands of the manufacturer, but there are others, such as bridge work, that must be handled by the dentist alone and worked on the license or royalty plan. The government grants to the inventor the exclusive right, for the term of seventeen years, to handle his inventions entirely in his own interests, and by what authority can others expect to share these privileges except at his pleasure? If, for example, it was his desire to monopolize, for his own use, the entire city of New York, including all others, granting no licenses, upon what grounds could others be justified in demanding a division except by paying just what he choose to ask, and if not worth the price let it alone for seventeen years, when all can share equal advantages. Is there any good reason why the practicing dentist should not enjoy the same advantages as the dental depot located in a city of 200,000 inhabitants? No other dealer can become established except by consent of the Dental Trade Association. Suppose we form a combination and



permit only a certain agreed number of dentists to practice in each place. Why not? This act of the D. T. A. is equivalent to a patent, if not greater in its control, being the branch of a grand head center whose very life depends on maintaining the highest prices for its wares. In plain English, a gigantic monopoly that bids fair to last forever, while the poor practitioner cannot expect his little side show to exist longer than seventeen years. These same monopolists base their power on the patent system, and are remarkably persevering in securing letters patent on every tool, art or product. Reconcile these discordant things as best you can, and they will be at variance with sound sense and true business principles.

With such glaring errors emanating from those who assume to be the representative men of the profession, is it any wonder that out of a grand total of 12,000 practicing dentists the largest average yearly meetings are seldom over 300. Clearly there must be something radically wrong, and the time must be about ripe when the masses of the profession will find it to their advantage to form an Independent Dental Society that will have a little more charity in its heart in favor of their inventors, and a wider interest extended to the suffering public especially through the medium of the press.

These facts were placed before the Association, and after a short discussion pro and con, the following withdrawal was accepted:

NIAGARA FALLS, N. Y., Aug. 3, 1887.

*To the President and Members of the American Dental Association:*

GENTLEMEN—Being the inventor and patentee of several improvements in the Art of Dentistry, which require modes of handling contrary to the rules of your ethics, I therefore ask that my name be stricken from the list as a member.

Yours very respectfully,

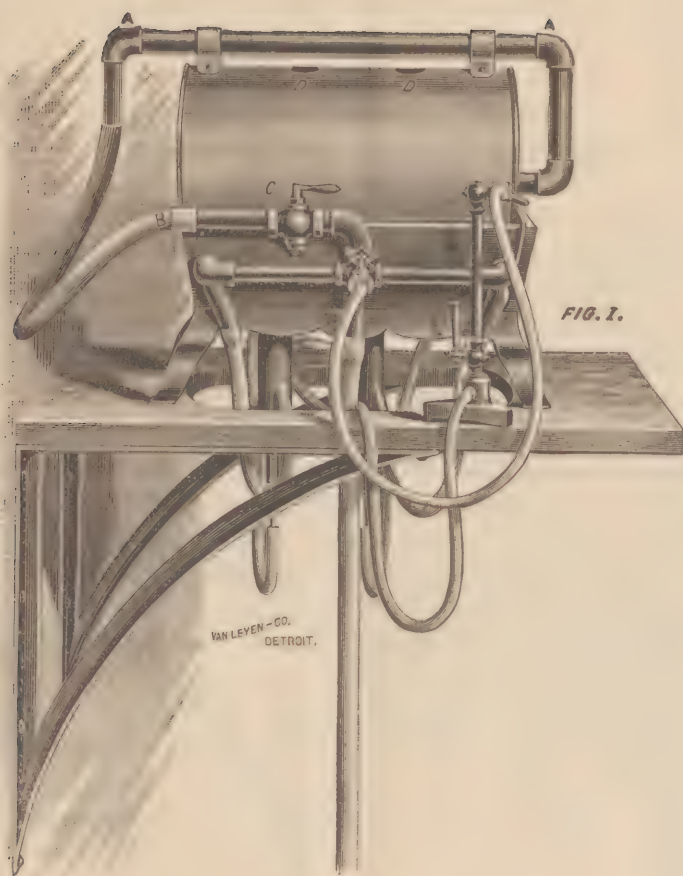
C. H. LAND.

## SIGNIFICANT.

In consideration of the action taken by this body who uphold an exceedingly arbitrary code of ethics and are bitterly opposed to patents and the judicious use of the public press, I feel justified in protecting my interests. Having secured patents on my inventions, it will be my privilege not to allow any one the right of use until it is agreed to judiciously advertise the same in the public press, for I believe that it is a fundamental principle of success to make known any and all improvements as rapidly as possible, using every honest means at our command. Indeed, I am sure that it becomes our duty to publicly announce the benefits to be derived from any source, and he who will take this broad and liberal view cannot be adjudged dishonorable. And in accordance with the sentiments here expressed, I deem it appropriate to give a short description of my work, in the following pages, so that the public may better comprehend the value of my efforts.

Respectfully,

C. H. LAND.



DR. C. H. LAND'S  
COMPOUND  
GAS OR GASOLINE FURNACE.

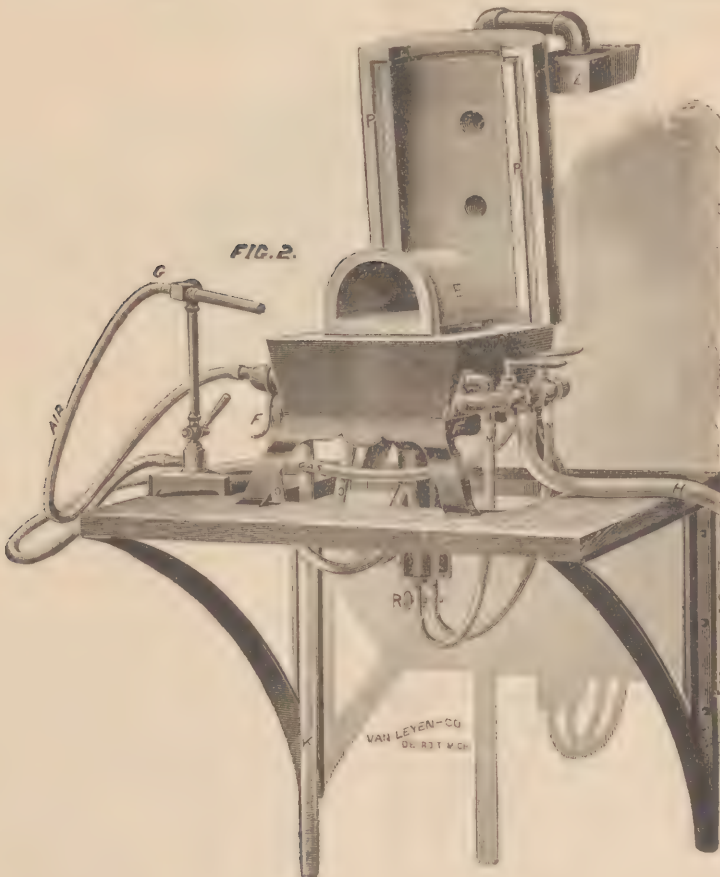
Patent Pending.



Size No 1, especially adapted for continuous gun work, all kinds of muffle work, crucible work, blow-pipe work, forging and brazing. It is the most complete furnace ever devised for the chemist, assayer, jeweller, dentist and metallurgist. The range of work that can be accomplished with it is practically without limit. Iron, brass and steel castings weighing from 2 to 12 pounds can be made in from 7 to 30 minutes. A muffle 8 inches long,  $3\frac{1}{2}$  inches wide,  $2\frac{1}{2}$  inches high (inside measurement), can be heated to over  $3240^{\circ}$  F. in 25 minutes, sufficient to melt wrought iron. Fig. 1 represents the furnace closed and ready for muffle work. A A is iron pipe, capable of both a sliding and swinging motion. (See I. Fig. 2), to which the door or plug is securely attached. There is a small hole in the door, covered with a piece of mica, through which all operations can be seen. Observe that the iron pipe is connected to rubber tubing B, and with pipe having an air cock C, which regulates the quantity of air passing into the mouth of the muffle. It will also be noticed that the pipe passes over the two holes D D, thus by the escaping flame the pipe is heated to redness and provides a superheated air before reaching the muffle; this column of air forced into the muffle keeps up a counter pressure within, so much greater than the pressure produced by the blast within the fire chamber, that all foul gases are prevented from entering the muffle even though it is cracked; thus the most delicate porcelain can be baked without the least danger of so-called gasing. Also it will be seen that by connecting the rubber pipe with retorts or gasometers any desired vapor or gas could be forced into the muffle, making the furnace invaluable for scientific experiments.

Fig. 2 illustrates the furnace thrown open, being swung on hinges at the back, exposing the muffle E. The groove P P is packed with asbestos fibre, so that when the sections are brought together the furnace will be perfectly air and gas tight. The hooks F F are to hold the upper section secure to the lower. The gas and air connections are so arranged that the ordinary blow-pipe can be attached as shown at G. When the muffle E is removed, it exposes two burners and a firebrick surface made to

fit the various appliances for crucible, ladle and blow-pipe work. One or both burners can be operated in conjunction with the blow-pipe G. The air cock R is to provide a means for shutting off the air supply from either burner when required. H is the



gas supply. K air pipe connecting with the bellows. Size of muffle, inside measurement, 8 inches long, 2½ inches high, 3½ inches wide. With gasoline gas porcelain teeth can be enameled in from 10 to 15 minutes; ordinary city gas is from 15 to 25 minutes, according to quality. In 30 minutes a heat sufficient to destroy

the muffle can be produced, which indicates a temperature of over 3240° F., much higher than is ever needed for all kinds of work, except the fusing of platinum. Three-eighths-inch gas pipe will supply sufficient gas, and can be worked with ordinary foot bellows.

## THE CROWN FURNACE

Is about one fourth the size of No. 1—muffle 3 inches long, 14 inches in diameter. It is a *pro similes* of No. 1, having blow-pipe and crucible attachment, and is especially adapted for enamel fillings, crowns and sectional block work; is much easier to operate than No. 1, and does the work more rapidly.

*Reprinted from "Items of Interest," October, 1886.*

## ARE HYDRO-CARBON OR GAS FURNACES A SUCCESS?

By DR. C. H. LAND, DETROIT, MICH.

For those who are not familiar with the nature of hydro-carbons, the philosophy of their combustion, etc, gas furnaces are not satisfactory; but the mastery of a few definite facts will make the whole subject plain, and the process easy. During the past year it has been my pleasure to bake over one hundred sets of continuous gum work, also sections of block work, porcelain, etc. This I have done with no more trouble than to turn on the desired quantity of gas and air and wait till the operation of baking was completed. Starting from a cold muffle it requires but fifteen minutes for the first biscuit, ten minutes for the second, and fifteen minutes to enamel, and where two furnaces are employed a slab of sectional block teeth can be enameled every five



minutes, in the most perfect manner, with unerring precision. Some gas furnaces have been a failure principally on account of their liability to gas the teeth. The accompanying illustration will make the philosophy of combustion more clear, and give the reasons why teeth are injured. A represents the burner; B B B



fire-brick lining; C C C combustion chamber; D interior of muffle. The arrows indicate the direction of the blast. The space in the combustion chamber between the lines E E is where carbon monoxid (c o) is formed,—a gas containing one equivalent less of oxygen than carbon dioxid—simply an imperfect state of combustion. It is this gas that injures the body and the enamel. By reference to the illustration it will be seen that the little arrows are made to appear passing through the pores of the muffle, and as the direction of the blast from the burner A, is directly against the bottom of the muffle, with a pressure of one pound to the square inch, a portion of the carbon monoxid (c o) is extremely liable to be forced through its pores, and will be taken up with the body during the first and second biscuiting, here to remain until the enameling process; and as this takes a

much higher degree of heat, it causes the gas to be eliminated, as shown in the numerous small bubbles on the surface. The space between the lines E E and within the combustion chamber C C C, should be known as the first stage of combustion, where a certain portion of carbon monoxid (c o) is always present, and the space between the lines G and E, within the chamber C, should be known as the second stage of combustion. In the first stage of combustion one equivalent of oxygen from the atmosphere unites with the hydro-carbon to form carbon monoxid (c o); in the second stage, two unite to form carbon dioxide (c o<sub>2</sub>), or carbonic acid. In my first experiments in baking porcelain with hydro-carbon fuels, nitrogen was injected into the muffle as a protection to the teeth, and proved highly successful. Further investigation has shown that porcelain can be baked satisfactorily by using a little air. Fig. 1 represents my new furnace closed and ready for muffle work. In Fig. 2, see exposed position of muffle. A A, Fig. 1, is iron pipe capable of both a sliding and a swinging motion (see L, Fig. 2), to which the door or plug is securely attached. Rubber tubing B, Fig. 1, connects with air supply at cock C. This regulates the quantity of air passing into the muffle. In the illustration you have seen that the monoxid of carbon (c o) is extremely liable to penetrate the muffle. We will assume that a small portion has entered the muffle; then what could be more reasonable than to force in a small quantity of air to unite with (c o) to form (c o<sub>2</sub>). To prove the theory correct, the entire upper portion of the muffle can be perforated with holes; this will allow the products of combustion (c o<sub>2</sub>) to pour in it a constant stream, and yet a set of teeth can be baked successfully without any danger of gasing, though, owing to the one equivalent of carbon a slight discoloration of the enamel will be observed. By perforating the muffle with three  $\frac{1}{4}$  inch holes on the upper portion of the rear end it will give vent to foul gases, and when a current of air is passed in at the front the tendency would be to pass out at the rear. As this current of air consists of nitrogen and oxygen, the latter would unite with any (c o) that might be present, leaving an excess of the former. Nitro-

gen not uniting radically with anything, serves as a protection to substances placed within the muffle.

It has been customary to perforate the end of the muffle in coal or coke furnaces, and as the natural draft would draw a sufficient quantity of air through the muffle, any monoxid of carbon present would be eliminated, consequently teeth were not gased unless placed in a cracked muffle. In all hydro-carbon furnaces it is necessary to use a blast to secure the required amount of heat, and the pressure must be at least one pound to the square inch; this is to force the proper amount of oxygen into the combustion chamber. Perfect combustion will not take place in natural-draft gas furnaces, because a sufficient quantity of air cannot be drawn into the combustion chamber without the use of a positive blast; it therefore becomes necessary to force both the air and the gas under pressure into the combustion chamber, the higher the pressure the greater the heat. My office is located in a building where steam power is available; from this I secure an air supply, conducted by means of gas pipes, into my laboratory, so that by simply turning on a supply of gas and air, teeth are baked with much less trouble than vulcanizing. Where it is customary to bake every day, a motive power is the most desirable, but where only an occasional set of teeth is required, the ordinary foot bellows answers better. But fifteen minutes of pumping is sufficient for each bake, and with a little assistance the work is comparatively easy.

*The Use of Gasoline.*—During the past year I have been using 74 gasoline with as perfect results as any other hydro-carbon; and with the ordinary foot bellows, as manufactured by the Buffalo Dental Manufacturing Co., I can bake a set of continuous gum work in fifteen minutes, starting from a cold muffle. All kinds of crucible work and soldering with the blow-pipe, can be done equally well as with city gas. One gallon of gasoline, costing 15 cents, will bake a set of teeth. Therefore, dentists living in localities where there is no gas can secure equal advantages in the use of 74 gasoline. City gas, at \$2.50 per thousand feet, will cost about the same.



## TESTIMONIALS.

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DR. LAND: *Dear Sir*—Having used one of your gas furnaces in my office for the last eight months, I can confidently recommend it to any one who desires to do original work. By its use a finer class of dental operations can be performed, such as porcelain fillings, enamel facings, restoring crowns and pivoting, which are not practicable without it. It bakes continuous gum work beautifully, and no danger of gasing it; is simple and easily managed, after a little practice. To use the words of one prominent in the profession, "it will be a brighter day for dentistry when our better men introduce and use furnaces in their offices, for it will be an indication of better work done."

The Land Gas Furnace simplifies the process of baking materially. I may also add that I find your furnace admirably adapted for melting, soldering, and even brazing purposes.

D. V. BEACOCK.

Brockville, Canada.

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DES MOINES, Iowa, August 14, 1887.

DR. C. H. LAND, *Detroit, Mich.*:

*Dear Sir*—Enclosed find draft on N. Y. for \$2.95 for the three muffles and two slabs. I think you have made an improvement on the old style muffles. I have baked a set of continuous gum teeth in the new muffle, and several enamel fillings, and the longest time, from a cold muffle, was 25 minutes; and all came out perfect—could not ask anything more. Since getting in my 1-horse-power electric motor, have no trouble with cheeks in the enamel, and have not had to turn a case around to get an even bake; it comes out baked all over alike. You could not get me to go back to the coke furnace again. Since I was up to your city last April, have baked quite a number of sets of continuous gum teeth, and enamel fillings, and some of them were baked in cracked muffles that I could see through, and as yet have the

first piece of work to come out gased ; and that is what you can't do on a coke furnace. My motor run the blower a little too fast—about 1,000 revolutions per minute—so I enlarged the pulley on the blower about  $\frac{1}{2}$  inch, to cut down speed, and now it is about right. I hope you will get around here this fall, for I want you to see my outfit. I have it so arranged that I would rather bake a set of continuous gum teeth than to vulcanize a set of rubber.

Dr., I got your pamphlet you sent me, and I like the ring of it. If we were allowed the use of the press to inform the public what we can do for them, there would be a less number of teeth sacrificed, but as it is now, we can only enlighten them as they come to our offices. I hope you will come out of the fight on top. Dr., if you want to use my name in regard to the furnace, you are at perfect liberty to do so. Anything I have said in this letter in favor of the furnace you are at liberty to use over my signature, or I will get you up a testimonial.

Respectfully yours,

C. THOMAS.

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*Reprinted from the "Independent Practitioner," of August, 1886.*

## A NEW SYSTEM OF RESTORING BADLY DECAYED TEETH BY MEANS OF AN ENAMELED METALLIC COATING.

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BY DR. C. H. LAND, DETROIT, MICH.

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This invention consists of an artificial coating of platinum made to fit the outside of the teeth, after which the anterior surface is coated with a porcelain enamel front, made to imitate the natural organs so perfectly that the art is concealed. Many of the long and tedious operations, where it has been deemed necessary to insert large and conspicuous gold fillings, may, by this process, be avoided, while better results are attained.

Fig. 21 is a typical case, where in place of inserting the usual gold fillings, the anterior surface may be reduced by means of small corundum wheels used in the dental engine, as indicated in Figures 1 and 2, Plate A.



Fig. 21.

Fig. 13, Plate B, is the prepared crown, ready for adjustment to the same by the use of oxy-phosphate cement. Fig. 22 represents a typical case of undeveloped lateral incisors, which can be enlarged to the proper size by the same means.

Fig. 4, Plate A, represents a decayed molar. Fig. 8 is the same prepared to receive the amalgam filling, which, when sufficiently hard, is prepared, as shown in Fig. 12, ready to have the crown, Fig. 16, cemented to it with oxy-phosphate cement. Fig. 9 is a central incisor, Fig. 10 is a cuspid, and Fig. 11 a bicuspid. Figures 13, 14 and 15 the crowns ready for adjustment. Those who object to the use of amalgam may use white cement or gutta-percha for fastening.

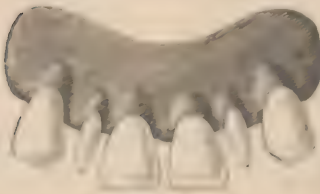


Fig. 22.

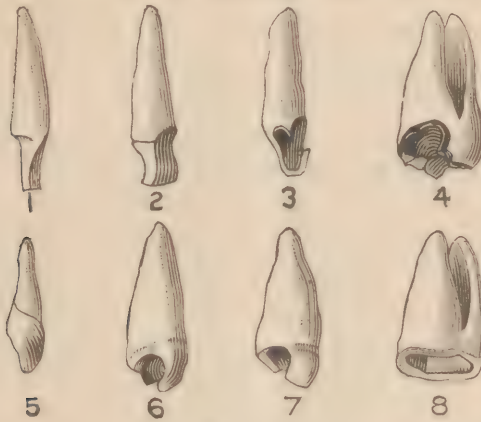
The manner of procedure in the case of devitalized and discolored incisors is first to prepare the teeth as shown in plate A, Figures 1 and 2. Then a thin piece of platinum plate, No. 30 standard gauge, should be fitted accurately to the tooth,

forming a hollow shell. Enamel fronts are now ground to fit, as shown in Figures 17, 18, 19 and 20; after which they are fused to the platinum in the same manner as continuous gum work, by using a porcelain body prepared expressly for the purpose. By the use of Lord's Gas Furnace this can be done in ten minutes. The enamel fronts and body are also manufactured and for sale by the Wilmington Dental Manufacturing Co.

Fig. 7 represents a central incisor built up with amalgam or cement, to which the platinum is closely fitted, after which the enamel front, Fig. 17, is ground to fit and fused to the shell, as

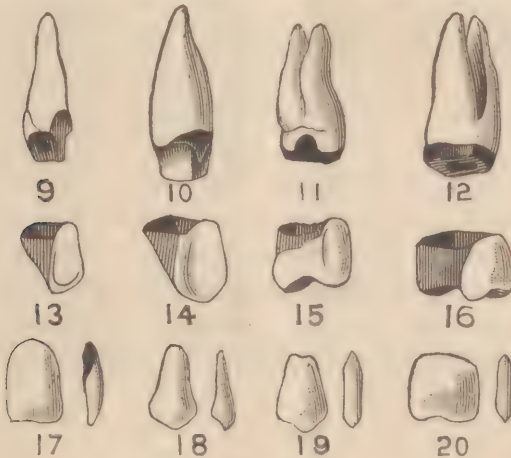


shown in Fig. 13, ready for adjustment to Fig. 9. Figures 10, 11 and 12 are modifications for canine, bicuspid, and molars, ready to receive the prepared coatings, Nos. 14, 15 and 16.



(Plate A.)

In introducing this class of work to the dental profession, a means is afforded through which a much better artistic effect can be attained and the preservation of a larger amount of tooth



(Plate B.)

structure be secured. Add to this the fact that there is but very

little pain or fatigue, either for the patient or operator, and it will be doubly appreciated.

During the past year this class of work has been thoroughly tested as to durability, and found to be much more reliable than gold fillings. In large contour work the frail walls of the tooth must be the main dependence of support, while with the hollow shell the weak tooth is held together. Thus it will be seen how much more complete is the preservation of tooth substance, it not being necessary to make undercuts or retaining pits.

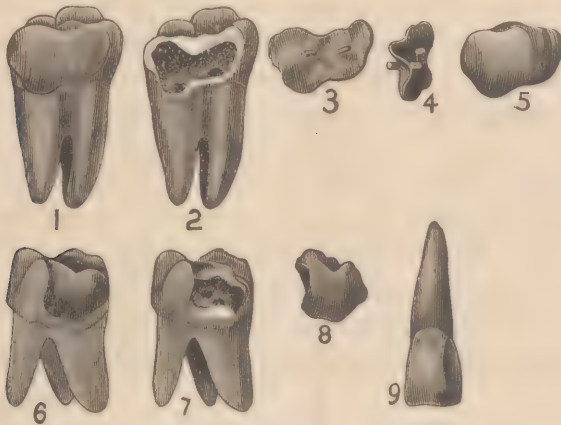
A young lady recently presented herself with both central incisors broken off by accident, the left one having lost about half its crown, with complete exposure of the pulp; the right one having only about one-sixth of its substance gone. Her teeth were unusually well preserved, while they were large and quite conspicuous. The right central was easily restored to a good contour by a little grinding. The left, after necessary treatment, was simply ground down upon the anterior surface, an operation demanding less than ten minutes of time. In twenty minutes more a platinum overcoat was fitted to it and the enamel front ground to it. This completed the first sitting. In the afternoon of the same day it required but a sitting of fifteen minutes to adjust the prepared coating. The result was a complete restoration, with the least possible amount of inconvenience to the patient, and the greatest amount of tooth substance preserved. Contrast this operation with what it would have been necessary to do had I attempted to restore the tooth by means of a gold filling, or to place upon the root a properly prepared gold crown. Think of the long and tedious operation, and when completed what a conspicuous piece of mouth jewelry it would have presented, and you may, perhaps, realize a part of the degree of satisfaction which I felt when I finished my operation.

*Reprinted from the "Independent Practitioner", of February, 1887.*

## METALLIC ENAMEL SECTIONS. A NEW SYSTEM FOR FILLING TEETH.

BY DR. C. H. LAND, DETROIT, MICH

In the July number of the *Independent Practitioner*, a description is given of my new process of coating badly decayed teeth. In addition to this, I have devised a means of filling teeth with prepared sections of porcelain, or it may be designated as a system of partial crown work. By reference to the engraving, Figs. 2, 7, 10, 12 and 15, there will be seen characteristic conditions of decay suitable for this class of work. Figs. 2 and 7 are the prepared cavities on anterior sides of molars. The manner of procedure is to burnish a thin piece of annealed platinum plate into the cavity. This takes a perfect impression of its outlines. The surplus edges are trimmed off and platinum pins attached, using pure gold leaf for solder. See Figs. 3 and 4.



The pins serve as a fastening, both to secure the completed section in place and as retainers for the porcelain body. Figs. 5 and 8 illustrate the completed sections, showing contour of the ori-





ginal shape of the lost portion of the natural tooth. Figs 1 and 6 are prepared sections cemented in place.

Having secured the prepared sections as shown in Figs. 3 and 4, porcelain paste or body is built upon them and carved so as to imitate the original contour of the lost portion of the tooth, as shown in Figs. 5 and 8. They are then placed on a bed of silex and fused in a gas furnace. This requires twenty min-

utes for the first bisuit, and fifteen for the second.

When completed, they will be a reproduction in porcelain of the lost parts of the natural organs, resembling nature perfectly, both in color and shape. They are then cemented in the cavity, either with gutta-percha filling or oxy-phosphate cement.

When the anterior side of a molar or bicuspid is decayed, as shown in Figs. 10 and 13, the enamel front or veneer, 13, is added to the porcelain body, and when completed it will appear as shown in Fig. 14. This veneer serves as a ready and efficient means of securing the proper shade and contour of each class of teeth. To those who are not familiar with the use of a gas furnace this class of work may seem difficult, but a little experience with the modern appliances now within the reach of every dentist, makes the operation a comparatively simple and easy one. Figs. 17, 18, 19 and 20 are a modification. Fig. 17 represents a tooth filled with gold, having two pins attached. Fig. 18 is a platinum disk, with tubes adjusted to correspond to the position of the pins in Fig. 17. Porcelain body is built about the tubes, and when fused in the furnace the whole will

form a porcelain crown as shown in Fig. 19. Fig. 20 illustrates the relative position of the tubes, which are designed to form countersinks for the pins in Fig. 17. When cemented in place, it makes a very durable and beautiful piece of work. Fig. 16 is an incisor constructed in a similar manner. From this will be seen the great advantage of being able to have the porcelain in a plastic state, as it enables the dentist to perfectly adapt the form of each peculiar case with the utmost precision, and this could not be so admirably done with manufactured crowns.

In bringing this new mode of practice to the notice of the dental profession, I wish to call especial attention to the large amount of tooth substance preserved. In nearly all the modern systems of crown-work there seems to be too much good tooth material cut away, and I think a careful investigation will demonstrate this new process to be far superior, making it possible to save the greater portion of the crown, it not being necessary to cut beneath the gum. In nearly every case, sufficient tooth substance can be retained to preserve the pulp alive, and when the teeth are devitalized, the major portions of the crown can be left intact, serving for retaining purposes and making it unnecessary, in the majority of cases, to resort to screws or posts. Fig. 16 illustrates a section of porcelain adjusted to a central incisor which, when carefully done, makes a very acceptable piece of work. Although the joint may sometimes be conspicuous, it is not nearly as much so as a glaring piece of gold.

The numerous opportunities presented in which this porcelain process will prove to be of great value, is almost without limit, and has enabled me to practice dentistry on an entirely new basis, so that to-day I can say to my patients that their teeth can be perfectly restored, both in appearance and usefulness, no matter how badly they are decayed. No pulps will be destroyed, and very little tooth substance need be cut away. The use of the rubber dam is largely dispensed with: there are no long and tedious malleting operations in large gold fillings, and no use for amalgam, yet the teeth can be perfectly restored in shape, color and size, with very little pain or fatigue either to the operator or patient.

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## METALLIC ENAMEL COATINGS AND FILLINGS.

READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN  
NEW JERSEY.

BY DR. C. H. LAND, DETROIT, MICH.

In the absence of practical demonstrations it is difficult to comprehend all the advantages brought about by improvements. The accompanying engravings, Figs. 1 and 2, are taken from practical cases that have at this date been in use for one year. In the case represented by Fig. 1, the patient was about sixty years of age. The right lateral incisor was prepared with a Howe post, shown in its relative position. The five remaining teeth, after the cavities were prepared, contained tooth substance as represented by the dark surfaces, the white representing the lost portion of each tooth, restored with sections of porcelain made to imitate the ex-

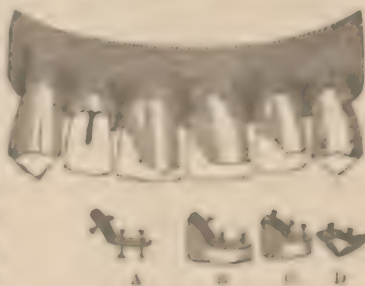


FIG. 1.

act color and contour of the original tooth substance. The cavities are prepared as for gold filling, when a thin piece of annealed platinum plate, No. 35 standard gauge, is placed over the tooth, and by means of burnishers made to take a perfect impression of the outer rim of the cavity after which platinum pins are attached, as shown at A. The object of the pins is to serve as a fastening, both for the porcelain paste or body and as retainers to hold the completed section in the cavity of the tooth. The porcelain paste or body is built upon the platinum disk and made to imitate the lost portion of the tooth. It is then baked in a gas furnace, requiring but twenty minutes for the first biscuit and fifteen for the second, and when finished it appears as shown



at B, ready to be cemented with oxy-phosphate. C and D are modifications for the other teeth, and Fig. 2 illustrates porcelain facings for molars.

The especial feature of this system, to which I wish to call your attention, is the large amount of tooth substance preserved above the gum, there being no necessity for telescoping the root so far below as to sever the tissues. This mode of practice also dispenses with the long operations and protracted use of the rubber dam ; it

almost entirely obviates the use of amalgam, and saves the necessity for large gold fillings ; there is no malleting, no long and tedious operation either for the patient or dentist, while at the same time teeth are perfectly restored, both in appearance and usefulness.

There is another advantage in the use of the enamel coatings which is not, in my opinion, a trivial matter. When large metallic fillings are inserted, the constant thermal changes consequent upon their alternate heating and cooling must exercise an unfavorable influence upon the tissues about the tooth. Even if the pulp is dead and the root be filled, there will be a checking and fracture of the tooth in time, from the continually varying changes of temperature. An inflammation of the membranes will also be likely to occur from the same cause, and thus the tooth will in time be lost from the mere influence of the presence of a large mass of metal.

It is also a fact that large gold fillings cannot be inserted without so much malleting that the strength of the tooth is gone, and frail walls are cracked beyond the possibility of repair. These dangers are all obviated by the use of the porcelain fillings, while teeth so restored are much more natural in feeling and more grateful to the touch of the tongue than any metallic filling can be. J

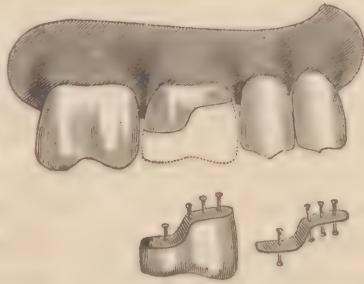


FIG. 2.

## A SYSTEM OF PARTIAL CROWN WORK.

These improvements have developed a new and practical method of preparing and attaching artificial sections of teeth which may be appropriately designated as partial crowns. From a series of different shades of porcelain body, these sections can be made to imitate the various colors of the natural teeth perfectly. Fig. 1, plate A, illustrates a bicuspid with anterior portion of the natural tooth intact, having Howe post attached.

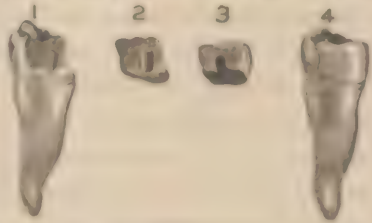


Plate A.

Fig. 2 represents a platinum matrix that has been carefully fitted about the post and burnished to the tooth. Fig. 3 illustrates the approximate surface of matrix, showing countersink for the post or screw, and on the anterior side part of the fused porcelain body can be seen. This forms a

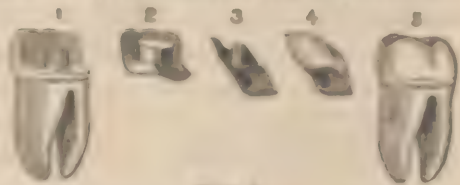


Plate B.

completed section ready to be cemented to the tooth, as shown in Fig. 4. From Figs. 1 to 5, in plate B, are modifications of the same for molars.

## IMPORTANT.

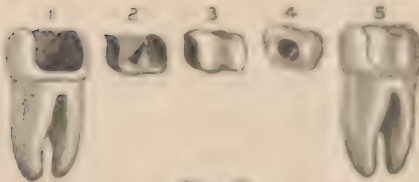


Plate C.

Plate C will be interesting, from the fact that it demonstrates a practical means of adjusting a porcelain section without resorting to posts or screws, and is especially ap-

propriate where the pulp has not been destroyed. Fig. 1 repre-

sents anterior side of molars, showing the prepared cavity. Fig. 2 is the platinum matrix. In the interior of this will be seen a piece of platinum in the form of a pyramid. This has been soldered to the matrix, and is intended to form a countersink in the completed section, as shown in Fig. 4. Fig. 3 is the completed section showing anterior surface, and Fig. 5 is the section cemented in the tooth.

Referring to Fig. 1 in this engraving, attention is called to the fact that where a cavity is deep and the angles are abrupt, that no countersinks or screws are needed; also that after the matrix has served the purpose of forming the section, the platinum is removed. This leaves a section of porcelain the exact counterpart of the cavity. When cemented in place would appear as shown in Fig 4.

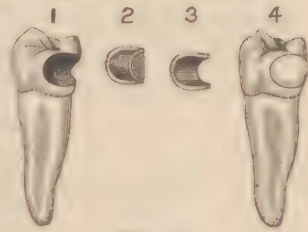


Plate D.

Plate E is a modification of the same process, involving two-thirds of the crown of a molar. Fig. 1 indicates that about

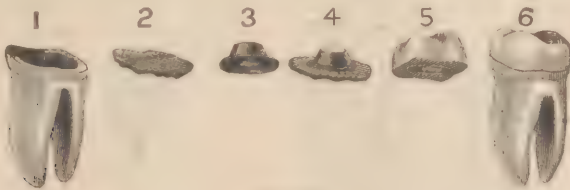


Plate E.

one-third of the crown is left intact, showing large cavity prepared with suitable undercuts. Fig. 2 is platinum foil, No. 60. This has been burnished over the horizontal portion of crown, then the prepared countersink, Fig. 3, which, it will be observed, has a large headed platinum pin, soldered in the interior. This prepared countersink is then carefully laid on the burnished piece of platinum, as shown in Fig. 4. Body is then built about it and fused in the gas furnace, and would appear as seen in Figs. 5 and 6. By carefully burnishing the platinum to the surface of the tooth, every little indentation is impressed on



the surface; in fact, the platinum takes a perfect impression of the tooth. Notice that the countersink, Fig. 3, is simply laid on the platinum, and not soldered to it, so that when the porcelain body has been fused the platinum can be peeled off. This leaves the approximate surface of the crown the exact counterpart of the horizontal surface of the natural tooth. The countersink being embedded in the central portion, the adaptation can be made remarkably perfect. The cavity in the tooth and the countersink in the crown is then filled with cement, and the two pressed together and allowed to harden, making a very desirable and durable piece of work.

### A DEVITALIZED CENTRAL INCISOR.

No. 1 illustrates the anterior surface reduced about one-half the thickness of the tooth; Fig. L is platinum matrix; Fig. M porcelain veneer; Fig. 3 is platinum matrix and veneer fused



Plate F

together; Fig. 2, the same adjusted to the tooth. This has proved to be a very satisfactory method of restoring the color of teeth, in place of the usual mode of bleaching.

## INCIDENTS OF OFFICE PRACTICE.

Miss —, 14 years of age, healthy and well developed, except the defect in the teeth presented a condition as illustrated in the engraving Fig. 1, Plate G.

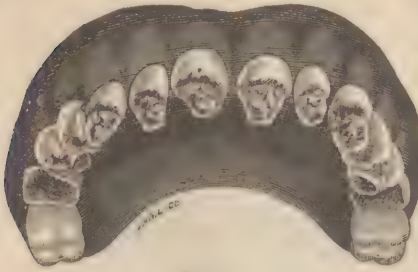


Plate G.

This will be interesting both to the dentist and the physiologist. Notice that the roots of the teeth have grown to almost their normal size, and are evidently still progressing. It will be observed that the enamel of the crown is perfectly developed for a short distance from the root, and that it ends abruptly, the rest of the crown showing a want of development, principally on that portion of the teeth where enamel alone should form; it will also be seen that the defect involved the cuspid, incisor and first molars only. That the bicuspsids and second molars were well developed and not decayed. On the lower jaw marked traces of the same defects were apparent and correspond to the same conditions as above. The indications are that in childhood local causes had in some way retarded the building up of the functions during the greatest period of the development of these particular teeth, which was verified by the statements of her parent, who informed me that her daughter, when a child, had been in feeble health for several years, and this after a severe attack of scarlet fever. Here then is a beautiful illustration of the allied interests of medicine and dentistry. Evidently the primary cause of the disease originated at that period

of life when the application of medical skill was the only remedy that could be applied, and years after the opportunity arrived when it was time for the dentist to complete the healing art. Fig. 2, Plate H, illustrates the same case restored by means of metallic enamel



Plate H.

coats. Practically, that which nature had been unable to provide has been accomplished artificially, and the most important feature of the work is that this has been done without the necessity of destroying any pulps or injuring any of the sensitive tissues. The teeth are now thoroughly protected from decay and

are restored perfectly in shape, size and color, serving their purposes as completely as though no disease had occurred.

### PATIENT No. 2.

Age 48 years; lower incisors worn off by abrasion, as shown in the engraving, Fig. 1. This involved the eight lower anterior teeth, the molars being substituted with a partial denture of con-



Plate I.—Fig. 1.

tinuous gum work. The patient having a vigorous constitution, the teeth were well set in the process and gums. Pulps had resorbed and partial ossification taken place. The work demanded was not only to adjust crowns on the roots but to restore the proper length both in the artificial denture and crowns, so that the antagonisms would be the same as when the teeth were in their normal condition. In preparing the metallic enamel coats an alloy of platinum and iridium was used; the object sought was to have the metal as thin as possible and at the same time be sufficiently strong to withstand the use required in mastication, etc. Also realizing the advantage of having the metal coats as thin as possible about the necks of the teeth, which would secure a very close adaptation and take up the least space between the roots. In this alloy the desirable qualities were found especially for the lower incisors. Fig. 1, Plate J, illustrates the appearance of the work when completed, and is at present giving the utmost satisfaction. Four years previous these teeth had been built up with gold by an experienced and careful operator, but as usual the gold had gradually become battered down and completely worn off. In comparison I have a large number of crowns that were adjusted to the roots of teeth eight and ten years ago, and this was done in a crude way, and at the present time doing good service. I therefore can speak with confidence as to the greater



durability of this more perfect method of adjusting porcelain coats, sections and fillings, whereby every possible condition of decay can be arrested and the teeth restored perfectly to their natural appearance in shape, size and color. Add to this the fact that these operations are accomplished without pain or fatigue to

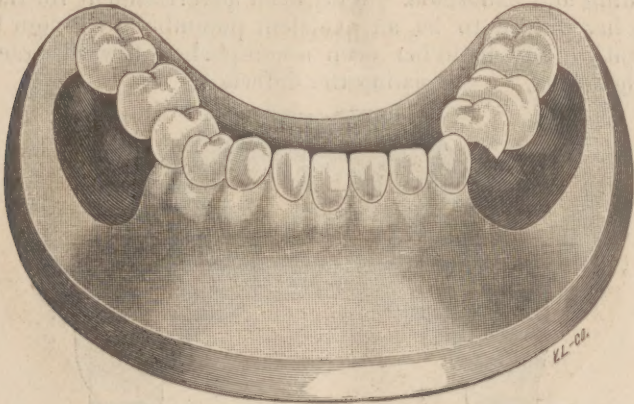


Plate J.—Fig. 1.

either the patient or dentist, that the long and tedious malleting is dispensed with, the protracted use of rubber dam not required; therefore will it not be considered as one of the greatest boons to suffering humanity.

### PERTINENT.

Twenty years of active practice, and five of them being spent as an assistant to several of the most noted dental practitioners, has taught me to have the utmost contempt for the man who will keep a child fastened in his dental chair with an accumulation of napkins, towels and rubber dam attached to a six-year molar preparing a cavity that is to be filled with a gold filling that will require from two to three hours constant malleting. Words cannot express my indignation against men who will insist on filling children's teeth with gold, not only on account of the painful operation, but from the fact that large blocks of metal, owing to their expansion and shrinkage and susceptibility of thermal changes, are not compatible with weak tooth structures; and from careful statistics I am enabled to state that gold has proved to be valuable only in the strongest teeth, and then in the medium-sized cavities. We have in the profession too large a percentage of men who have become so wedded to the use of gold as a filling as to carry it to an absurd extreme; their greatest ambition seems to be on making the greatest possible display of their skill in the

shape of elaborately polished gold fillings and entire gold teeth. So assiduously has this mode of practice been followed that it has actually created a morbid desire with many people to want perfectly sound teeth drilled into and gold fillings inserted. It seems that with some a great display of mouth jewelry is quite becoming and handsome. Well as an advertisement for the dentist it has proved to be an excellent perambulating sign board, illustrating how little has been accomplished toward practicing the higher art, by concealing the defects.



Ruin.

The above illustrates a series of possible conditions of decay in its most aggravated form, the teeth having been prepared to receive the porcelain sections, partial and entire crowns.



Repair.

The same restored with porcelain.

*Practice the higher art—Preserve, Restore and Save the natural teeth, and with pride place at your door the sign*

**NO TEETH EXTRACTED.**







